

STEM COMMUNICATIONS

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World has Changed



Industrial Culture



knowledge Culture

World has Changed



Industrial Culture



knowledge Culture

<https://www.nancydixonblog.com/knowledge-management-strategies/>

<https://universalfuture.org/the-industrial-revolutionaries-and-the-monkey-syndrome-696339b15197>

Interdisciplinary communications



STEM education = Knowledge Worker

Working with other knowledge workers

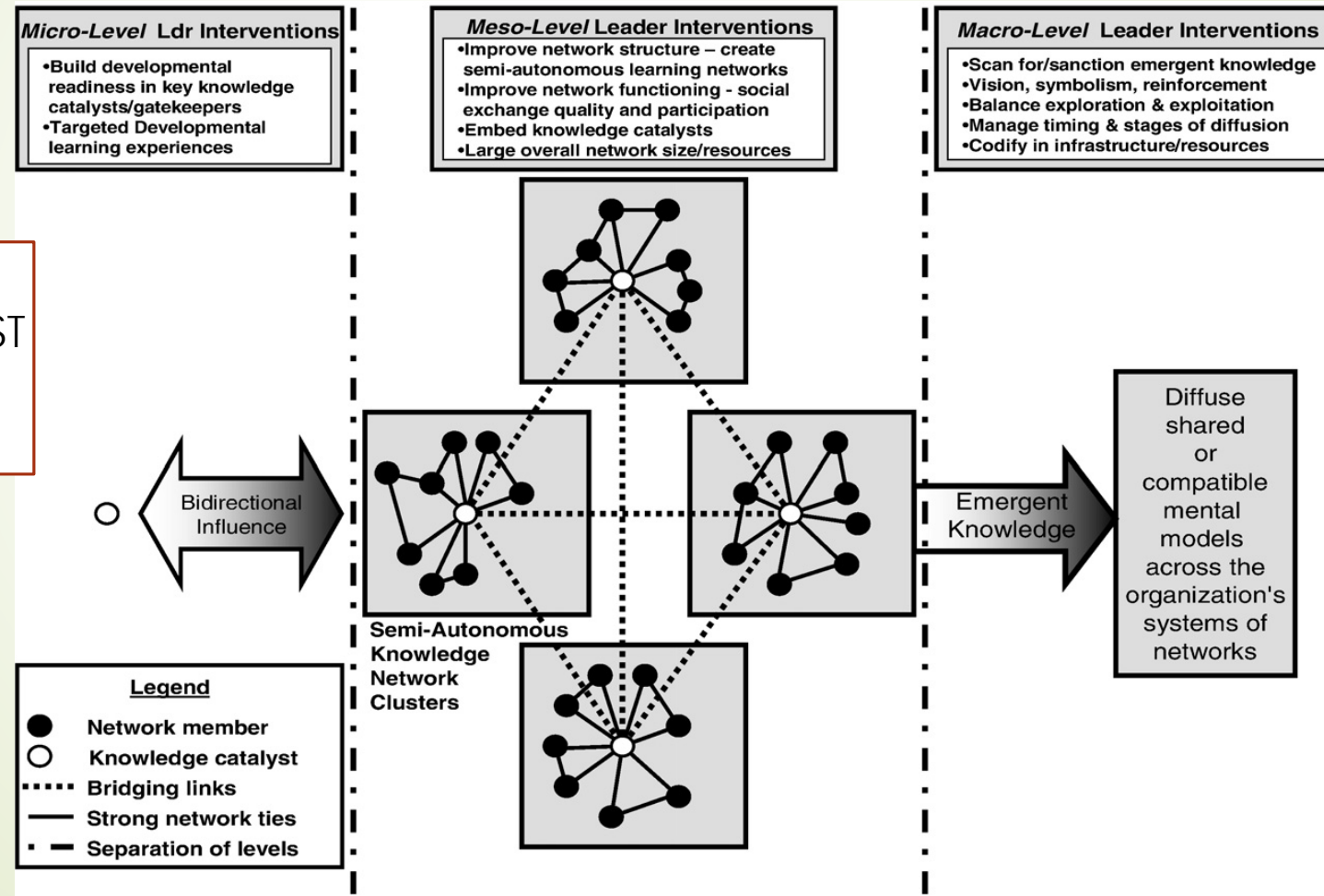


- Pharmacists,
- Public accountants,
- Engineers,
- Architects,
- Lawyers,
- Physicians,
- Scientists,
- Financial analysts,
- Design thinkers
- IT
- Systems analysis
- Technical writers
- Researchers

Understand your networks

Adapt to your role

- NETWORK MEMBER
- KNOWLEDGE CATALYST
- BRIDGING LINK



STEM folks: Know your work place !!!



- Business acumen
- Open –sourcing thinking
- Active unlearning
- **OVER Communicate** ✓
- Evolution management
- Project management
- Virtual team management

Inter connected networks (communities of Practice)



**Make Yourself
Heard !**

Climbing the knowledge ladder

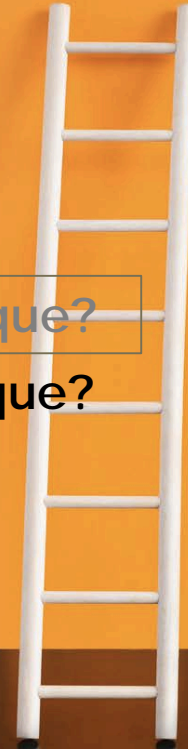
Rain water harvesting

Rain: Monsoon? Poor storage !!!

Rain: Monsoon? Poor storage?

Pesticide? Rain? Soil? Seed? Technique?

Pesticide? Rain? Soil? Seed? Technique?



take action based on your beliefs.

Conclusions => **beliefs**

Assumptions => **draw conclusions**

Meanings make assumptions

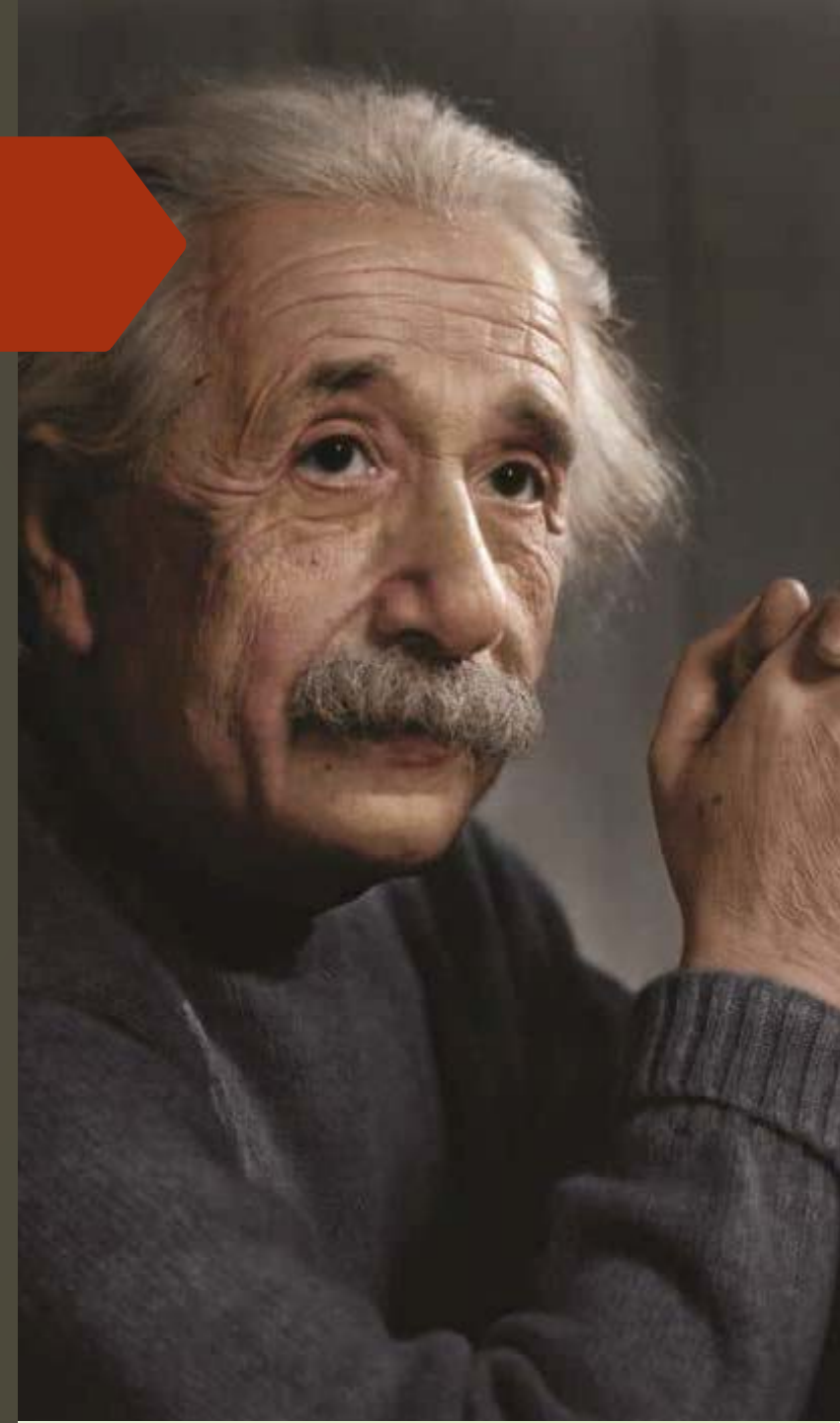
add meaning

select the data that we're going to observe

data observed from an experience

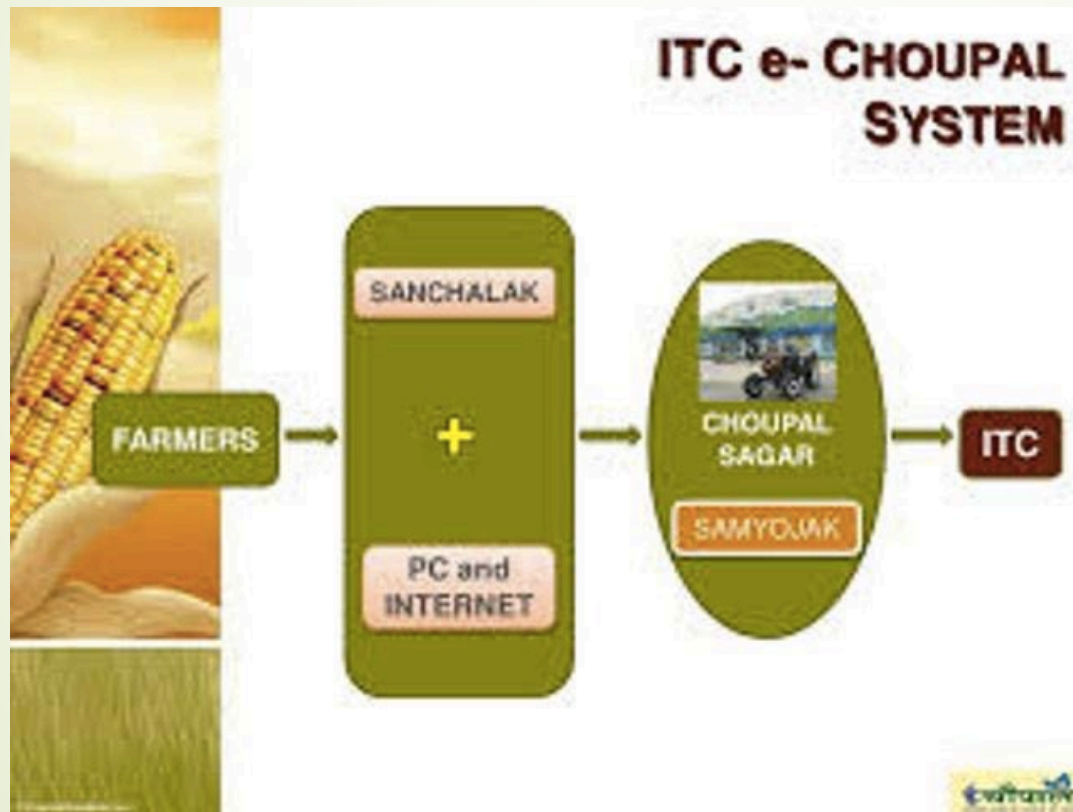
If you can't explain it simply, you don't understand it well enough," - Albert Einstein.

- ▶ Over the last century
- ▶ STEM schools have Imparted technical education
- ▶ They have forgotten something => To impart
 - ▶ Communication skills



E-Choupal

STEM Communication



Shakti rural marketing

STEM Communication



Design messages for them?

It builds support for science

More informed decision-making

Government to individuals

science more diverse and inclusive

core professional skills
for STEM Professionals

Message making



Know your audience

$$\rho = \frac{m}{\frac{4}{3} \pi r^3}$$

$$\frac{m}{\left(\frac{2Gm}{c^2}\right)^3 \cdot \frac{4}{3} \pi} = 1000 \text{ Kg} / M^3$$

$$\frac{m}{\frac{8G^3 m^3}{c^6} \cdot \frac{4\pi}{3}} = 1000 \text{ Kg} / M^3$$

$$\frac{3mc^6}{32 \pi m^3 G^3} = 1000 \text{ Kg} / M^3$$

$$3c^6 = 32000 \pi m^2 G^3 \cdot \text{Kg} / M^3$$

$$m = \sqrt{\frac{3c^6}{32000 \pi G^3 \cdot \text{Kg} / M^3}} = \frac{c^3 / 100}{\sqrt{3.2 / 3 \pi G^3 \cdot \text{Kg} / M^3}}$$

$$m \approx \frac{2.7 \cdot 10^{23} M^3 / \text{sec}^3}{\sqrt{10 / 3 \cdot 3 \cdot 10^{-31} M^9 \cdot \text{sec}^{-6} \cdot \text{Kg}^{-3} \cdot \text{Kg} / M^3}} = \frac{2.7 \cdot 10^{27} M^3 / \text{sec}^3}{\sqrt{10 \cdot 10^{-31} M^6 / \text{sec}^6 \cdot \text{Kg}^{-2}}}$$

$$m \approx \frac{2.7 \cdot 10^{23}}{10^{-13}} \text{ Kg} = 2.7 \cdot 10^{38} \text{ Kg}$$

$$r = \frac{2Gm}{c^2} = 4 \cdot 10^8 M$$

astrophysicist to astrophysicist
Astrophysicist to STEM scientist

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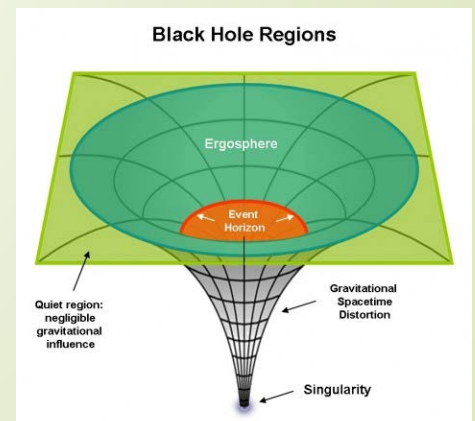
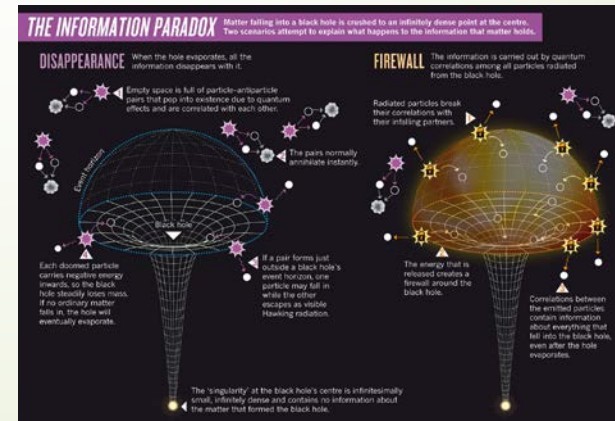
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Astrophysicist to any
STEM orientated
Press reporter



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Astrophysicist to lay person

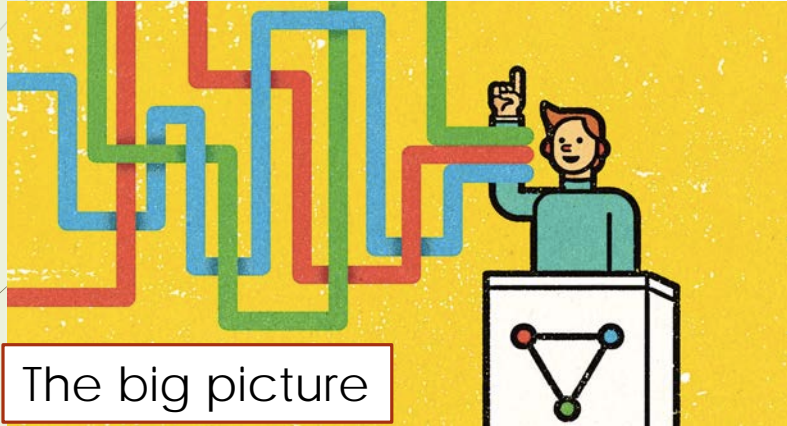


Simple
Precise
Visual
Symbols they can relate

Black hole: a vacuum that sucks up light



Knowledge worker communications



The big picture



Use simple words and concepts



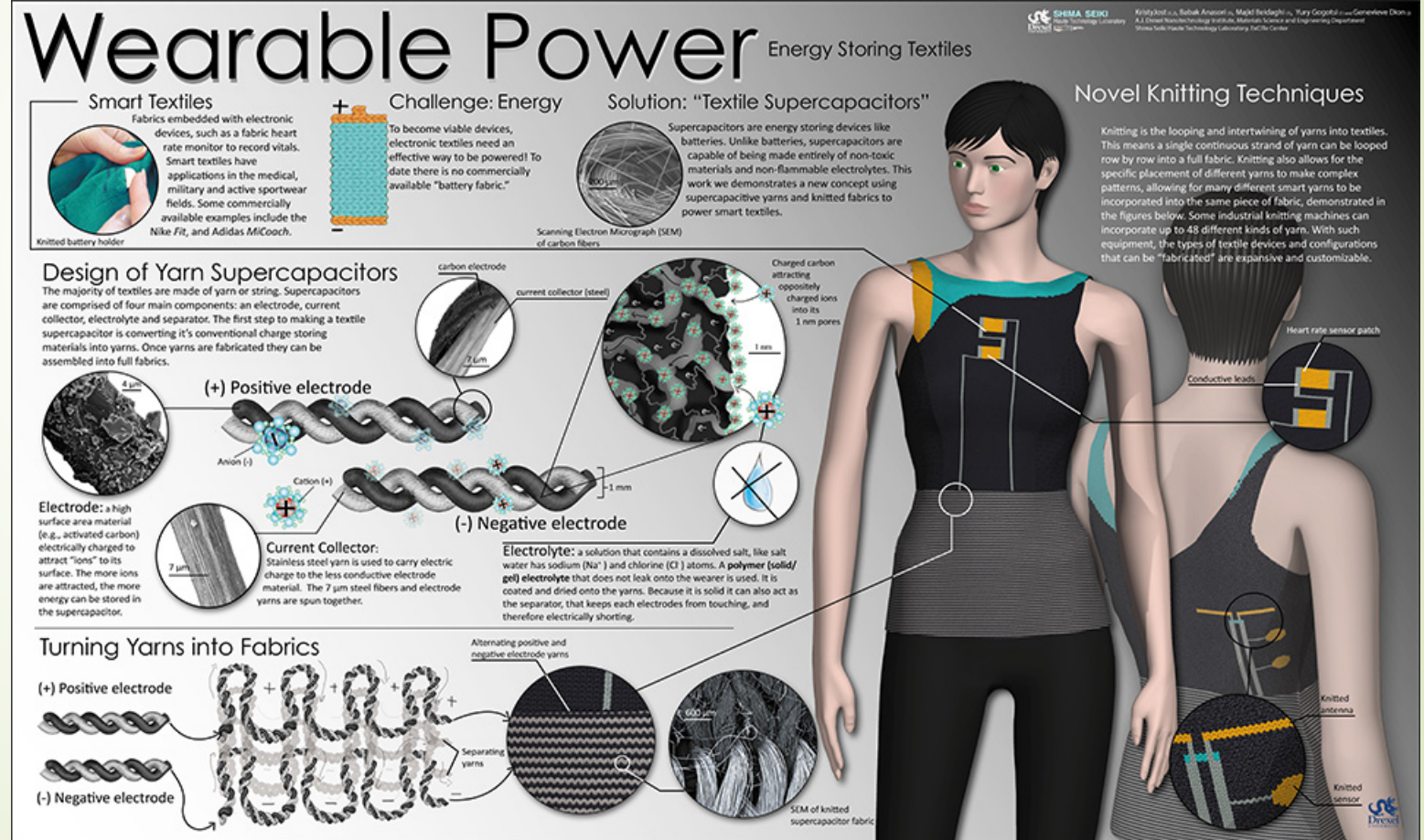
Audience awareness is key



Be precise

More visuals less text

1. Organization
2. Revision
3. Visual metaphor
4. Readability
5. Check with sample audience



Make your case:

Be persuasive



- More than simply providing information.
- We want **to evoke a reaction** from our audience
- Convince them to **act** in a certain way
- whether it's to take our subject seriously or
- to **support our work** directly (via funding or sponsorship) or
- indirectly (by voting for candidates who will support our work or
- by attending more talks in the field).
- need to be **persuasive**.
- **make your claims clear** and **provide evidence** to support them

Show your impact:

what's the story here?


- Humans like stories.
- We find it easy **to identify with characters**,
- and we are **able to visualize information** when it's presented as a narrative.
- Audience will be much **more interested** in and engaged with what you're presenting.
- If you can show them how **they fit into the story**, they will be much more likely to take up your cause. Change names but real-like situations
- Essentially, you need to **help your audience see** what all of the information and data adds up to.
- Just ask yourself: **what's the story here?**





STEM Communication: TIPS

Knowledge worker

- 
- Know your audience
 - Be visual
 - Be brief
 - Be Precise
 - Simple English/vernacular
 - Don't say Pneumonia; say lung infection
 - Show your impact : Stories telling
 - Modified names; real situations
 - Team & Collaborative work
 - Choose your words
 - A Picture= 1000 words
 - Know your role in the organization
 - Macro, Meso, Micro views
 - Right message Right place Right time
 - Choose Message, medium, method



Thank you